

REMARKS

As noted previously, the Applicant appreciates the Examiner's thorough examination of the subject application. Claims 1-23 are pending in the subject application. Claims 1-23 were rejected in the non-final Office Action mailed 15 February 2009 on various grounds, as described in further detail below.

Independent claims 1 and 22 are herein amended to recite "a dedicated control processing facility comprising a control execution path having its own control register file, a branch unit, an execution unit, and a load/store unit". This amendment is supported by paragraphs [0019] and [0021], and figure 1 of the application as published, namely U.S. Patent Publication No: 2005/0223197. Independent claims 1 and 22 have also been amended to recite "*and to said second data execution path for processing when a configurable data processing instruction is detected*". In addition, independent claim 22 has been amended to recite "*causing the computer processor to supply said at least one data processing instruction to said first data execution path*", and to recite "*outputting results produced by said first data execution path when a fixed data processing instruction is detected and outputting results produced by said second data execution path when a configurable data processing instruction is detected*". Claim 23 is canceled without prejudice. No new matter has been added.

Applicant requests reconsideration and further examination of the subject application in light of the foregoing amendments and the following remarks.

Specification

Concerning item 3 of the Office Action, the specification was objected to as allegedly failing to provide proper antecedent basis under 37 CFR § 1.75(d)(1) for the term "computer readable medium" as claimed in claim 23. Without acceding to the propriety of the objection, Applicant notes that claim 23 has been canceled without prejudice.

Claim Objections

Concerning item 5 of the Office Action, claim 23 was objected to for an informality. As

claim 23 is canceled herein, the noted objection has been rendered moot.

Claim Rejections – 35 U.S.C. § 112

Concerning items 6-10 of the Office Action, claims 22 and 23 were objected to under 35 U.S.C. § 112, second paragraph, as being indefinite. More specifically, claim 22 was stated as having insufficient antecedent basis for the phrases “said data processing instruction” and “said execution path”. Claim 22 has been amended to rectify the noted issues. Claim 23 has been canceled without prejudice. Thus, the rejections under 35 U.S.C. § 112 are believed to be overcome.

Claim Rejections – 35 U.S.C. § 103

Concerning items 11-35 of the Office Action, claims 1-23 were rejected under 35 U.S.C. § 103(a) as being unpatentable over U.S. Patent No. 5,737,631 to Trimberger (“Trimberger”) in view of “Configurable Multiplier Blocks for Use Within an FPGA” (1998) by Haynes et al. (“Haynes”) and further in view of “A Flexible LUT-Based Carry Chain for FPGAs” (2003) by Lodi et al. (“Lodi”). Applicant traverses the rejection, requesting reconsideration for the following reasons.

The primary reference, Trimberger, does not disclose, at least, “a dedicated control processing facility comprising a control execution path having its own control register file, a branch unit, an execution unit, and a load/store unit”, a dedicated data execution path including “at least configurable operators and a controller, said configurable operators pre-configured into a plurality of hardwired operator classes” or the controller being “operable to configure the connectivity of said configurable operators in accordance with configuration information provided in an opcode portion of said configurable data processing instruction”, as claimed in the independent claims of the present application.

The Examiner expressly admits for the rejection that Trimberger does not teach a dedicated control processing facility comprising a control execution path having its own control registered file. Applicant concurs. However, the Examiner goes on to state that it would have been obvious to a skilled person to modify Trimberger to include a branch unit having its own

register file for executing call and return-type instructions, and predicting return addresses to increase throughput. The Examiner also states that such a register file is only written to and read from when a branch of some sort occurs, and consequently it can be said that the branch unit has its own register file. *Applicant does not concur with the Examiner's contention* that it would have been obvious to a skilled person to amend Trimberger to include a branch unit. In addition, even if Trimberger were to be amended to include a branch unit, the subject matter of Applicant's amended claims would not result, as will be explained.

A branch unit, e.g., as recited in amended claim 1, is not a "*dedicated control processing facility*". A dedicated control processing facility is a self contained control path having its own control register file, branch unit, execution unit, and load/store unit. The load/store unit may also be used to load or store data to or from the data register file in the data processing facility. The dedicated control processing facility recited in the claims is therefore more than a mere branch unit. Essentially, the dedicated control processing facility has all the facilities required to execute a program written in a computer language such as C.

Furthermore, Trimberger discloses an instruction address register 105 connected to an incrementing logic unit 106 for sequencing through a sequence of instruction addresses. If an instruction is to be implemented out of order an instruction control states machine 107 is coupled to the register 105 for managing the instruction stream. A condition code register 108 supplies condition codes to the machine 107. The machine 107 and register 108 perform mechanisms for branching. Therefore, when provided with Trimberger, it would not have been obvious to a skilled person to provide a branch unit as described by the Examiner, since Trimberger already discloses a mechanism capable of performing branches, and therefore a skilled person would not consider Trimberger as requiring a branch unit.

Moreover, as is stated above, even if a skilled person were to amend Trimberger to include a branch unit, the subject matter of the Applicant's independent claims would not result since *a branch unit is not equivalent to a dedicated control processing facility comprising a control execution path having its own control register file, branch unit, execution unit, and*

load/store unit. A branch unit does not have its own control register file, branch unit, execution unit, and load/store unit.

Consequently, Trimberger does not disclose, or hint at, a computer processor comprising a control processing facility and a data processing facility, the data processing facility having a first (fixed) data execution path and a second (configurable) data execution path, as recited in the independent claims of the subject application. The arrangement of having separate data and control processing facilities enables the computer processor of the present invention to process control instructions in parallel with (fixed or configurable) data processing instructions, whereas the processor of Trimberger is only capable of processing control and data instructions serially. Consequently, the computer processor of the subject application is advantageous over that of Trimberger, since it is faster. Haynes and Lodi do not cure the noted deficiencies of Trimberger.

Thus, the combination of Trimberger, Haynes, and Lodi (whether the references are considered alone or in any combination) forms an improper basis for a rejection of claim 1-23 under 35 U.S.C. § 103(a) and Applicant accordingly requests that the rejection be withdrawn.

Conclusion

In view of the amendments and remarks submitted herein, Applicant respectfully submits that all of the pending claims in the subject application are in condition for allowance, and respectfully requests a Notice of Allowance for the application. Authorization is hereby given to charge our deposit account, No. 50-1133, for any fees required for the prosecution of the subject application.

Respectfully submitted,

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